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Categorization of Advanced Materials and European Environmental Regulation

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Advanced engineering materials or just "advanced materials" is one of six technologies that have been identified as "Key Enabling Technologies" (KETs) by the European Commission. Here, we present one of the first efforts to systematically categorise, define and evaluate advanced materials in the context of their coverage by EU environmental legislation. Most of the categorisation schemes for advanced materials suggested in the literature provide a clear classification of the advanced material categories that they include although they differ substantially in regard to the number of included advanced material categories and the extent of coverage. A few schemes entail advanced material categories that are not defined or explained in any detail. In the context of regulatory coverage of advanced materials, it is particularly important to understand whether advanced materials or a specific category of advanced materials (e.g. nanomaterials and high-performance polymers) can be said to fall under definitions already set under EU legislation. For instance, the definition of polymers under REACH may not be adequate for high-performance polymers. A substantial effort is needed in order to ensure that definitions of advanced materials used in forthcoming research and regulation cover all relevant categories of advanced materials. Limited or no regulatory issues are foreseen if they do fall under existing definitions, whereas it is unclear how advanced materials will be regulated, if they do not fall under legislative definitions. Furthermore, a better overview is needed of the current annual manufacturing, production and commercialization of advanced materials in general and the different categories of advanced materials, to support regulation and an evaluation of environmental releases and potential risks. Further expert consultation and stakeholder engagement is needed in order to understand what the risks might be and how they might best be explored and handled.

References:

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